CLAIMS

What is claimed is:

1. A method for differential coherent combining of received signals in an electronic article surveillance system, comprising:

removing transmitter phase variation from a received signal, said received signal including a first component of an electronic article surveillance tag response and a second component of noise;

filtering said received signal with a plurality of filters each having a preselected bandwidth and a preselected center frequency;

sampling the output of each of said plurality of filters to form a plurality of filtered samples;

combining by diversity averaging each of said plurality of filtered samples; and,

quadratically detecting each of said plurality of filtered samples by squaring the diversity combined samples and summing to arrive at a differentially coherent combined signal.

2. The method of claim 1 further comprising comparing said differentially coherent combined signal to a preselected threshold and providing an output signal associated with said comparison.

3. The method of claim 2 wherein a plurality of said differentially coherent combined signals are summed just prior to said comparing to said preselected threshold.

4. The method of claim 1 further comprising discarding any of said plurality of filtered samples that are not relatively close to one another, including discarding all of said filtered samples if none of said filtered samples are relatively close to one another.

5. A system for differential coherent combining of received signals in an electronic article surveillance receiver, comprising:

means for removing transmitter phase variation from a received signal, said received signal including a first component of an electronic article surveillance tag response and a second component of noise;

means for filtering said received signal with a plurality of filters each having a preselected bandwidth and a preselected center frequency;

means for sampling the output of each of said plurality of filters to form a plurality of filtered samples;

means for combining by diversity averaging each of said plurality of filtered samples; and,

means for quadratically detecting each of said plurality of filtered samples by squaring the diversity combined samples and summing to arrive at a differentially coherent combined signal.

6. The system of claim 5 further comprising means for comparing said differentially coherent combined signal to a preselected threshold and providing an output signal associated with said comparison.

7. The system of claim 6 further including means for summing a plurality of said differentially coherent combined signals just prior to said comparing means.

8. The system of claim 5 further comprising means for discarding any of said plurality of filtered samples that are not relatively close to one another, including discarding all of said filtered samples if none of said filtered samples are relatively close to one another.